



09 UTILITIES & WATER

The provision of public and private utilities is essential to a healthy community. Richfield offers high quality services for the benefit of its citizens including: water; sanitary sewer collection; surface water management (storm drainage and sewer.) These services as a group comprise the public utilities provided to the community. It is critical that these essential services are properly maintained to assure a safe and reliable service can be offered that makes Richfield an attractive place to live.

Please note the City's Water Supply Plan and Local Surface Water Management Plan (see Appendix F) helped create this chapter. These documents should be referenced for more information pertaining to the comprehensive plan requirements.

WATER SUPPLY

The City of Richfield delivers safe, clean and reliable drinking water to residents throughout the City. The water plant, which provides both filtration and softening is sourced by seven high capacity municipal wells. Water is transported and delivered via the distribution system which is comprised of a single pressure zone with two elevated storage tanks and approximately 120 miles of transmission and distribution water mains ranging in size up to 24 inches in diameter. The City continues to strive to provide safe drinking water in an efficient manner but optimizing current operations and mitigating risk.



SANITARY SEWAGE

Richfield’s sanitary sewage collection and pumping system has not undergone major upgrades in the past ten years and is considered to be in fair to good condition. The current sanitary collection system, as shown in Figure 9-1, is adequate to handle peak average daily flows (ADF) both now and in the future based on Metropolitan Council forecasts shown in Table 9-1 below.

By the end of the year 2010, the City of Edina began routing wastewater flows through a relief interceptor to relieve capacity issues from Metro Council Environmental Services (MCES) Interceptor 1-RF-491 for peak wet weather flows experienced during intense rainfall periods (producing Inflow/Infiltration). Most of Richfield’s growth areas are in the vicinity of the MCES Interceptor 1-RF-491.

The MCES relief line interceptor reduces the flows in the existing interceptor (1-RF-491) by conveying the City of Edina’s wastewater around Richfield. Model results shows that this sufficiently addressed potential capacity limitations for the city of Richfield along the interceptor.

The sanitary sewer interceptor from Edina extends from the southwest corner of Richfield to Cedar Avenue at Diagonal Boulevard on the east side.

The interceptor sewer increases sewage capacity considerably and allows Richfield to handle increased land use densities along I-494 and Highway 77 consistent with the Comprehensive Plan.

As a developed community, the City provides sanitary sewer service to all developed property within its boundaries. There are no unsewered areas.

Richfield will reduce inflow and infiltration (I/I) into the sewage collection system in order to maintain the MCES Design Peak Hour to Average Daily Flow (P/A) Ratio of 2.5. The ratio is the number that the MCES uses to determine the allowable peak hour flow rate for the Richfield collection system at MCES surcharge.

The design flows are presented in Table 9-2. Richfield’s Average Daily Flow design flows will be 3.72 million gallons per day (mgd) in 2020 and will increase to 3.78 mgd by 2025. Using MCES peaking factor (P/A) calculated for Richfield based on the design flows, the peak hour flow rate in 2030 would be 9.60 mgd (3.84 time 2.5). The existing MCES interceptor system (1- RF-490) will be able to handle the current and future design ADF and peak flow rate after they construct the relief line alongside MCES Interceptor 1-RF-491 which will carry the City of Edina’s wastewater flows.

The City of Richfield is already fully developed. The Average Daily Flow design flow number for the year 2030 is based on the City’s projected land use in that year. The number takes into account all planned development in Richfield for the next 20 years.

Based on Richfield’s water records and the assumption that all water accounts would be connected to sanitary sewers, the number of sewer connections would be 10,726 and be

Table 9-1. Population, Household, and Employment Trends

Year	Population	Household	Employment
2020	35,700	15,600	16,600
2030	35,600	16,000	17,100
2040	35,900	16,400	17,500

Source: Metropolitan Council

[illegible]

equal to the number of water accounts in Richfield. The number of sewer connections is broken down in Table 9-3.

Richfield does not own a wastewater treatment plant and, therefore, does not need an NPDES permit to operate one. Figure 9-1 shows all the sanitary sewer piping owned by the City of Richfield and their sizes. All of the Richfield collection system is connected to the MCES interceptor collection system and transported through Minneapolis and Saint Paul to the MCES Pig's Eye Wastewater Treatment Facility.

Regarding inter-community sewer connections, Metropolitan Airports Commission (MAC) property and approximately 35 to 40 residential units or equivalents from Edina enter the Richfield sanitary sewer system. MAC property is identified on Figure 9-1.

Richfield has no plans to alter its City boundaries and, therefore, will not affect inter-community connections.

So far, Richfield has not exceeded the peak flow rate established by the MCES. Overall, the City has done a good job to date. The City has been examining its sanitary sewer collection system through the development of a computer model to isolate areas in the sewer system which may need additional capacity. One way to add capacity is to effectively manage inflow and infiltration (I/I.) The results of the flow monitoring data the City is collecting for the sanitary sewer model will help the City identify areas with high Inflow and Infiltration volumes. The City could use this data for further investigation by performing smoke testing and/or private property building inspections in areas identified with high peak flow rates during wet weather periods as necessary to isolate specific sources of I/I in the Richfield sanitary sewer collection system. The results of future flow monitoring will determine the need for further investigation.



Table 9-2. Wastewater Average Daily Flow Projections

MCES Interceptor	2020		2030		2040	
	MCES Total Flow (MGD)	Richfield's Contribution (MGD)****	MCES Total Flow (MGD)	Richfield's Contribution (MGD)****	MCES Total Flow (MGD)	Richfield's Contribution (MGD)****
1-RF-490*	7.44	2.76	7.51	2.83	6.542	3.884
1-RF-491**	5.48	1.17	5.49	1.18	3.290	1.476
1-RF-492***	0.96	0.96	1.01	1.01	3.524	1.941
M130	8.40	3.72	8.52	3.84	9.405	4.664

*Flow before 1-RF-490 intersects 1-RF-492

**Flow before 1-RF-491 intersects 1-RF-490

***Flow before 1-RF-492 intersects 1-RF-490

****Contains MAC Flow

Table 9-3. Number of Sewer Connections by Interceptor

	# of Sewer Connections	Direct Connections To MCES Interceptor
MCES Interceptor 1-RF-490	5,540	213
MCES Interceptor 1-RF-491	3,587	307
MCES Interceptor 1-RF-492	1,599	0
Totals	10,726	520

SURFACE WATER MANAGEMENT

The City prepared a Surface Water Management Plan (SWMP) in 2018. The SWMP sets the course for the City's management of stormwater and water resources within the City. The SWMP provides data and other background information on resources, assesses city-wide and specific issues, sets goals and policies for the City and its resources, and lays out an implementation program to achieve the City's goals. Its recommendations are included here by reference.

Generally, the City's surface and stormwater management efforts focus on reducing the volume and improving the quality of stormwater runoff. The City is in the process of developing or updating hydrologic, hydraulic, and water quality models to identify issues related to water quantity and water quality within the City and prioritize those issues for future action. As a fully developed City, redevelopment provides the most advantageous opportunity to implement best management practices (BMPs) to address surface water and stormwater issues.

Surface Water Strategies

The City's surface water goals (see Chapter 4) are supported by more specific policies and strategies. The policies and strategies are intended to complement applicable county, regional, or state policies and regulations. The City's policies and actions are organized into four strategies. These strategies will assist the City in targeting its main audiences for the purposes of storm water management as follows:

- » Cooperation with other governmental entities
- » Education, Training, and Outreach
- » Regulation and Permitting
- » Operations

The use of these strategies as they pertain to the management of surface water and stormwater is described in greater detail in the SWMP. Specific policies associated with each strategy are documented in the SWMP.

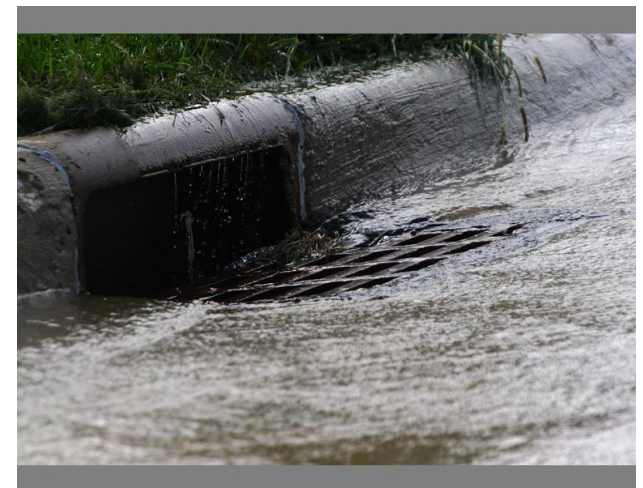
Surface Water Management Implementation Program

The City's SWMP describes the significant components of the City's surface water and stormwater implementation program, including

- » Implementation of the City's NPDES MS4 Permit
- » Operation and maintenance of the City's stormwater system
- » Education and public involvement
- » Enforcement of ordinances and official controls
- » Projects, including investigative studies and capital improvements

Under the U.S. Environmental Protection Agency's (EPA) Storm Water National Pollutant Discharge Elimination System (NPDES) Rules, Richfield is required to maintain a Municipal Separate Storm Sewer System (MS4) Permit for managing non-point source stormwater. As part of the permit, the City must also prepare and maintain a Storm Water Pollution Prevention Program (SWPPP) addressing all requirements of the permit. The SWPPP outlines the appropriate best management practices used by the City to control or reduce the pollutants in stormwater runoff to the maximum extent practicable. These practices are a combination of education, operations and maintenance, system design and engineering methods, and other such provisions that are appropriate to meet the requirements of the NPDES permit.

Richfield is responsible for maintaining its stormwater system, including storm sewer pipes, ponds, pond inlets and outlets, and channels. The City implements an operation



and maintenance program consistent with the requirements of its MS4 SWPPP. Stormwater pond maintenance is a significant element of the City's overall maintenance program. The program includes sediment removal in many of the primary stormwater treatment ponds in the City. Other elements of the City's maintenance program include, but are not limited to: catch basin cleaning, street sweeping, and maintenance of privately-owned stormwater BMPs.

The City performs various education and communication activities to further promote awareness of water resource issues and develop community capacity for watershed stewardship. The City's education and public involvement program is closely tied with the City's implementation of its NPDES MS4 permit and has been designed to be in conformance with the City's NPDES MS4 permit. The watershed management organizations (WMOs) within the

City also have strong education and public involvement programs. The City will continue to work with the WMOs within the city to coordinate education and public involvement efforts to maximize impact and minimize redundancy.

The City has instituted regulatory controls and a corresponding permit program to limit negative impacts to water and natural resource resulting from development, redevelopment, and other land-disturbing activities. The City requires proposers of residential projects with land-disturbing activities of one acre or commercial, industrial, institutional, or mixed-use projects to submit a stormwater management plan to the City for approval prior to construction. The City coordinates its project review and permitting process with the WMOs with jurisdiction in the City, where applicable.

In addition to its ongoing programs and permit activities, the City performs studies and capital projects to address surface water and stormwater issues. These may include investigative studies to identify issues (e.g., lake diagnostic studies, hydrologic and hydraulic modeling) and feasibility studies to evaluate potential solutions. Following assessment of feasibility, the City may construct (or cooperate with other entities to implement) to construct capital projects to implement a solution. To maximize efficiency, the City seeks to coordinate its capital improvements road reconstruction, redevelopment opportunities, or other coordinated projects. The City may also prioritize projects based on the availability of grant funding, cost-share opportunities, or availability of other funding sources or manpower that may reduce the City's financial responsibility.

